Purpose and Objectives of Activity

The learner will

The learner will

The learner will

> *Each unit should have an introduction and purpose statement to stress the importance of the unit. Your purpose should state the general information to be included in the unit and how it will meet your objectives. Provide a list of objectives for the unit using descriptive terminology such as:*
>
> | | |
> |---|---|
> | *The learner will develop* | *The learner will discuss* |
> | *The learner will demonstrate* | *The learner will debate* |
> | *The learner will experiment* | *The learner will formulate* |
>
> *These objective statements call for higher order thinking skills and require students to do more than recall lecture information.*

Standards Addressed

Standard 4:   Students will develop an understanding of the cultural, social, economic, and political effects of technology.

Benchmark H: Changes caused by the use of technology can range from gradual to rapid and from subtle to obvious.

Benchmark I: Making decisions about the use of technology involves weighing the trade-offs between the positive and negative effects.

Standard 15:   Students will develop an understanding of and be able to select and use agricultural and related biotechnologies.

Benchmark F: Technological advances in agriculture directly affect the time and number of people required to produce food for a large population.

Benchmark K: Agriculture includes a combination of businesses that use a wide array of products and systems to produce, process, and distribute food, fiber, fuel, chemical, and other useful products.

Standard 17:   Students will develop an understanding of and be able to select and use information and communication technologies.

Benchmark M: Information and communication systems allow information to be transferred from human to human, human to machine, machine to human, and machine to machine.

Benchmark P: There are many ways to communicate information, such as graphic and electronic means

Recommended Teaching Methods

1. Method 1:
   Description

2. Method 2:
   Description

3. Method 3:
   Description

Prior Knowledge

Resources

http://www.iteawww.org/
http://icontechlit.enc.org/
http://webster.commnet.edu/mla/index.shtml
http://www.apastyle.org/elecref.html

Time

Instruction/Activity	Days to Complete

Activity Ideas:
1. Satellite Imagery
2. GIS Mapping
3. Research and create a portfolio—steer to plate
4. Cooperative Horticulture activity

Description→ (a detailed outline of the unit content)

I.   Agriculture in North Dakota

      A.   Raw Materials

      B.   Resources

      C.   the Process

II.   Operation Costs—Effectively Running the Operation *(very specific)*

      A.   Seek assistance from Ag. Educator

      B.   Extension Agent Guest Speaker

      C.   DTN's

III.   Honing in on one material (wheat) *(very specific)*

IV.   Production

V.   Technologies in Agriculture that makes this possible *(*Remember Sender, Channel, Receiver, Feedback)*

      A.   Ariel Photography

      B.   GPS

      C.   Laser Technologies with Receivers

      D.   Chemicals

      E.   Analysis—Organic Qualities

      F.   Satellite imagery

      G.   GIS Mapping

      H.   Telecommunications

      I.   Cell phones

      J.   CB's

VI.   Marketing

      A.   Labeling

      B.   Advertising

      C.   Marketability of various product aspects

      D.   Grading Systems

VII.   Future of Agriculture

      A.   Bio-tech commercialization

      B.   Family Farm Structure is changing

Assessment

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Project Assessment	Example Rubric Layout			
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Extension 1→
Extension 2→
Extension 3→

Summary or Lesson Notes:

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- Last minute details

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Purpose and Objectives of Activity

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The learner will

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Standards Addressed

Standard 3:   Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study.

      Benchmark H: Technological innovation often results when ideas, knowledge, or skills are shared within a technology, among technologies, or across other fields.

Standard 5:   Students will develop an understanding of the effects of technology on the environment.

      Benchmark H: When new technologies are developed to reduce the use of resources, considerations of trade-offs are important.

Standard 8:   Students will develop an understanding of the attributes of design.

      Benchmark H: The design process includes defining a problem; brainstorming; researching and generating ideas; identifying criteria and specifying constraints; exploring possibilities; selecting an approach; developing a design proposal; making a model or prototype; testing and evaluating the design using specifications; refining the design; creating or making it; and communicating processes and results.

      Benchmark K: Requirements of a design, such as criteria, constraints, and efficiency, sometimes compete with each other.

Standard 20:   Students will develop an understanding of and be able to select and use construction technologies.

      Benchmark J: Infrastructure is the underlying base or basic framework of a system.

      Benchmark N: Structures can include prefabricated materials.

1

Recommended Teaching Methods

1. Method 1:
   Description

2. Method 2:
   Description

3. Method 3:
   Description

Prior Knowledge

Resources

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Time

Instruction/Activity   Days to Complete

Activity Ideas:
1. Research the different materials used in construction or the evolution of those materials.
2. Create a power point detailing the different materials used in construction or the evolution of those materials.
3. Create a photo portfolio detailing the process involved in building.
4. Create a photo portfolio for a contractor or carpenter.

Activity Ideas Continued…

5. Create a display showing the different structure types used in local construction.
6. Tours
    a. Cabinet shops
    b. Prefab
    c. Plastics
7. Guest Speakers
8. Video documentary of a construction process

Description→ (a detailed outline of the unit content)

I. Design Process

    A. CAD to finished product

II. Materials

    A. Steel

    B. Wood

        1. Particle Board

        2. Plywood

        3. Composite Materials

            a) Defining what makes these

            b) Defining how these materials are pre-fabricated

    C. Block/Brick

III. Structures

    A. Types

    B. Parts

        1. Foundations

        2. Walls

        3. Rafters

        4. Flooring

IV. Building Processes

    A. Steps

    B. Prefabrication

V. Remodeling

Assessment

Project Assessment	Example Rubric Layout			
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Extension Activities

Extension 1→
Extension 2→
Extension 3→

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   Benchmark H: Technological innovation often results when ideas, knowledge, or skills are shared within a technology, among technologies, or across other fields.

   Benchmark I: Technological ideas are sometimes protected through the process of patenting.

Standard 4:   Students will develop an understanding of the cultural, social, economic, and political effects of technology.

   Benchmark H: Changes caused by the use of technology can range from gradual to rapid and from subtle to obvious.

   Benchmark I: Making decisions about the use of technology involves weighing the trade-offs between the positive and negative effects.

   Benchmark J: Ethical considerations are important in the development, selection, and use of technologies.

Standard 7:   Students will develop an understanding of the influence of technology on history.

   Benchmark G: Most technological development has been evolutionary—the result of a series of refinements to a basic invention.

   Benchmark J: Early in the history of technology, the development of many tools and machines was based not on scientific knowledge but on technological know-how.

Standard 7 continued…

Benchmark O: The Information Age places emphasis on the processing and exchange of information.

Standard 19:   Students will develop an understanding of and be able to select and use manufacturing technologies.

Benchmark L: Servicing keeps products in good operating condition.

Benchmark P: The interchangeability of parts increases the effectiveness of manufacturing processes.

Recommended Teaching Methods

1. Method 1:
   Description

2. Method 2:
   Description

3. Method 3:
   Description

> *Depending on how the instruction is structured, many different methods may be implemented. This section will list all types of teaching methods and a short description on how each will be used to complete the unit. (A good number to work toward would be 3-5)*
>
> *Example:*
> *1. Method 1: Cooperative Learning, Teamwork, and Leadership*
> *   Description (one or two sentences)*
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Prior Knowledge

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Resources

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Time

<u>Instruction/Activity</u>   <u>Days to Complete</u>

Activity Ideas:

1. Build a pin-hole camera *(Bob Naslund has this activity)*
2. Graphic manipulation/animation exercise
3. "Dream Camera" prototyping project

Description➔ (a detailed outline of the unit content)

I.   Digital operations

      A.   Settings

      B.   Memory options

      C.   Output choices

II. History of digital technology

      A.   Inventors

      B.   Timeline

          1.   Scientific Knowledge (now)
          2.   Technological Know-How (then)

      C.   What's new

          1.   Interchangeability of parts increases the effectiveness of manufacturing processes of the camera
          2.   Fads of the time period dictate part and function changes

III. Effects on printing

      A.   Dot matrix

      B.   Inkjet

      C.   Laser

IV. Manipulation of imagery

      A.   Darkroom editing

      B.   Digital manipulation

V.   Legal implications

      A.   Ethics considerations

      B.   Legal ramifications

      C.   Patents/Copyrights (Neustal Law Office in Fargo—possible contact resource)

VI. Occupational opportunities

      A.   Advertising

      B.   Medical

      C.   Photography

      D.   Graphic Arts

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Standards Addressed

Standard 6:   Students will develop an understanding of the role of society in the development and use of technology.

Benchmark I: A number of different factors, such as advertising, the strength of the economy, the goals of a company, and the latest fads, contribute to shaping the design of and demand for various technologies

Standard 10:   Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.

Benchmark J: Technological problems must be researched before they can be solved.

Benchmark K: Not all problems are technological; not every problem can be solved by using technology.

Benchmark L: Many technological problems require a multidisciplinary approach.

Standard 11:   Students will develop abilities to apply the design process.

Benchmark M: Identify the design problem to solve and decide whether or not to address it.

Benchmark O: Refine a design by using prototypes and modeling to ensure quality, efficiency, and productivity of the final product.

Benchmark Q: Develop and produce a product or system using a design process.

Standards Addressed continued…

Standard 12:   Students will develop abilities to use and maintain technological products and systems.

>   Benchmark O: Operate systems so that they function in the way they were designed.

>   Benchmark P: Use computers and calculators to access, retrieve, organize, process, maintain, interpret, and evaluate data and information in order to communicate.

Recommended Teaching Methods

1. Method 1:
    Description

2. Method 2:
    Description

3. Method 3:
    Description

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Time

Instruction/Activity   Days to Complete

Activity Ideas:
1. Build product
2. Invent product

Description→ (a detailed outline of the unit content)

I.   Discuss the design process, the seven steps.

II.   Famous innovative designs, building, products, transportation

III.   CAD

IV.   Modeling

V.   Brainstorming

VI.   Patenting

VII.   Royalties

VIII.   Manufacturing

IX.   Marketing

Assessment

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Extension Activities

Extension 1→
Extension 2→
Extension 3→

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Benchmark J: The design needs to be continually checked and critiqued, and the ideas of the design must be redefined and improved.

Standard 13:   Students will develop abilities to assess the impact of products and systems.

Benchmark I: Interpret and evaluate the accuracy of the information obtained and determine if it is useful.

Benchmark J: Collect information and evaluate its quality.

Benchmark K: Synthesize data, analyze trends, and draw conclusions regarding the effect of technology on the individual, society, and the environment

Standard 17:   Students will develop an understanding of and be able to select and use information and communication technologies.

Benchmark J: The design of a message is influenced by such factors as the intended audience, medium, purpose, and nature of the message.

Standard 17 continued…

Benchmark N:	Information and communication systems can be used to inform, persuade, entertain, control, manage, and educate.
Benchmark P:	There are many ways to communicate information, such as graphic and electronic means.
Benchmark Q:	Technological knowledge and processes are communicated using symbols, measurement, conventions, icons, graphic images, and languages that incorporate a variety of visual, auditory, and tactile stimuli.
Standard 18:	Students will develop an understanding of and be able to select and use transportation technologies.
Benchmark L:	Transportation services and methods have led to a population that is regularly on the move.
Standard 19:	Students will develop an understanding of and be able to select and use manufacturing technologies.
Benchmark K:	Marketing a product involves informing the public about it as well as assisting in selling and distributing it.
Benchmark R:	Marketing involves establishing a product's identity, conducting research on its potential, advertising it, distributing it, and selling it.

Recommended Teaching Methods

1. Method 1:
    Description

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    Description

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Time

> This section should provide a detailed breakdown in the amount of time necessary to complete each component of the unit lesson.   Example:
> a.   Introduction and lesson content-3 days
> b.   Writing assignments and other written assessment (test/quiz)- 2 days
> c.   Laboratory activity- 7 days
> d.   Independent study- 2 days
> e.   Etc....

Instruction/Activity   Days to Complete

Activity Ideas:
1. Fashion Shooting
2. Digital Inserts Activity *(Rich Conley has this activity)*
3. Language Stimuli
    a. Scavenger hunt of messages around them
    b. Discuss how language couples with the image to impact the message

Description→ (a detailed outline of the unit content)

I.   Discuss the Vehicles of Media Historically
II. Target Audience
- A. Purpose
- B. Demographics
- C. Age Groups
- D. Consumer Groups
- E. Population Structure Changes (on the move)
- F. Textbook Evolution (*Repeated in Message Purpose due to the possibility of multiple messages and purposes*)
     1. Who did we see then?
     2. Who do we see now?
III. Means of Medium
- A. Internet
- B. Print
- C. Software
- D. Transportation (Society is mobile)
     1. Mobile billboards
     2. Roadside billboards
     3. Bus window signs
     4. Taxis
     5. Airlines
IV. Message Purpose
- A. Inform
- B. Persuade
- C. Entertain
- D. Graphical Messages
- E. Textbook Evolution (*Repeated in Target Audience due to the possibility of multiple messages and purposes*)
     1. Who did we see then?
     2. Who do we see now?
- F. Marketability of Message—How does the society impact message?
- G. Language Stimuli
- H. Deciphering the Messages
     1. Upfront
     2. Subliminal
- I. Constraints
     1. Ratings
     2. Censoring

Assessment

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Purpose and Objectives of Activity

The learner will

The learner will

The learner will

Standards Addressed

Standard 1:   Students will develop an understanding of the characteristics and scope of technology.

    Benchmark L: Inventions and innovations are the results of specific, goal-directed research.

Standard 3:   Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study.

    Benchmark J: Technological progress promotes the advancement of science and mathematics.

Standard 4:   Students will develop an understanding of the cultural, social, economic, and political effects of technology.

    Benchmark J: Ethical considerations are important in the development, selection, and use of technologies.

Standard 14:   Students will develop an understanding of and be able to select and use medical technologies.

    Benchmark K: Medical technologies include prevention and rehabilitation, vaccines and pharmaceuticals, medical and surgical procedures, genetic engineering, and the systems within which health is protected and maintained.

Recommended Teaching Methods

1. Method 1:
        Description

2. Method 2:
        Description

3. Method 3:
        Description

> Depending on how the instruction is structured, many different methods may be implemented. This section will list all types of teaching methods and a short description on how each will be used to complete the unit. (A good number to work toward would be 3-5)
>
> Example:
> 1. Method 1: Cooperative Learning, Teamwork, and Leadership
>   Description (one or two sentences)
> 2. Method 2: Standards-based Student Assessment
>   Description (one or two sentences)
> 3. Method 3: Sharing, Reporting, and Recording Information
>   Description (one or two sentences)

Prior Knowledge

> This section should provide a description of any previous knowledge not included in this unit that is necessary to complete what is required. This would most likely be something covered in a previous course or lesson that has given a base of knowledge necessary for completing the required activity or assignment.

Resources

> This section should provide a detailed list of resources that can be used for lesson content or enhancement activities. These resources can consist of textbooks, magazines, video series, internet websites, and other resource materials. Your list should be done in bibliography or citation form (APA or MLA style).

http://www.iteawww.org/
http://icontechlit.enc.org/
http://webster.commnet.edu/mla/index.shtml
http://www.apastyle.org/elecref.html

Time

> This section should provide a detailed breakdown in the amount of time necessary to complete each component of the unit lesson.   Example:
>   a.   Introduction and lesson content-3 days
>   b.   Writing assignments and other written assessment (test/quiz)- 2 days
>   c.   Laboratory activity- 7 days
>   d.   Independent study- 2 days
>   e.   Etc....

Instruction/Activity   Days to Complete
Activity Ideas:
1. Open discussion on health related diseases. (*Standard 1L & 14K*)
2. Open discussion on prevention/detection (*Standard 3J & 14K*)
3.   Research on advancements within the health related areas
    (*Standard 3J, 4J, & 14K*)
    a. x-ray
    b. Orthoscopy
    c. MRI
    d. Ultrasound
    e. Cloning

Activity Ideas continued…

4. Micro-photography – photograph various diseases w/in the health related areas and produce a graphical presentation representing that specific disease. (*Standard 3J & 14K*)
5. Design a layout/document detailing (explaining) a specific disease. (*Standard 14K*)

Description→(a detailed outline of the unit content)

I. Diseases

II. Prevention/Detection

A. Nuclear Medicine

III. Therapy

IV. Technology in Health related areas

A. Advancements

B. X-ray

C. Scans

D.   Orthoscopy

E.   MRI

F. Ultrasound

G. Cloning

Assessment

This area is one of the most important parts of your completed lesson. Your assessment of student understanding must be documented effectively to show they have mastered the material. If you construct an assessment without clearly stated assessment goals, it will be useless in determining mastery. A rubric can be constructed to help provide structure to your assessment objectives. The following example shows a good design for a rubric and where the performance indicators should be placed. (Keep in mind this is only an example.)

Project Assessment	Example Rubric Layout			
Target Objective 1	Level 1 Indicator Minimum Performance Description 1 points	Level 2 Indicator Limited Performance Description 2 points	Level 3 Indicator Sufficient Performance Description 3points	Level 4 Indicator Superior Performance Description 4 points
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This rubric example was made using the rubric generator at
http://landmark-project.com/classweb/rubrics/index.html

Extension Activities

Extension activities are provided for students that are able to go beyond the stated objectives or have an interest in pursuing additional information on the topic and activity presented in the lesson. It also serves as a list of options for consideration to enhance the lesson and extend the learning of all students.

Extension 1→
Extension 2→
Extension 3→

Summary or Lesson Notes:

This is an area to address any part of the lesson in which special attention or additional reminder notes are necessary.

- Special Materials (that cannot be purchased in advance)

- Special Instructions

- Last minute details

- Other important instructional information not directly related to the lesson.

Special Needs/Adaptations

Identify areas of improvement regarding gender equity issues. Areas should be identified that could cause a potential for gender problems and how you addressed them in the construction of your lesson.

In addition, identify areas of improvement regarding special needs students. Areas should be identified that could cause a potential for problems and how you addressed them in the construction of your lesson.

Purpose and Objectives of Activity

The learner will

The learner will

The learner will

Standards Addressed

Standard 5:   Students will develop an understanding of the effects of technology on the environment.

   Benchmark I: With the aid of technology, various aspects of the environment can be monitored to provide information for decision-making.

   Benchmark K: Humans devise technologies to reduce the negative consequences of other technologies.

Standard 11:   Students will develop abilities to apply the design process.

   Benchmark L: Make a product or system and document the solution.

   Benchmark N: Identify criteria and constraints and determine how these will affect the design process.

Standard 12:   Students will develop abilities to use and maintain technological products and systems.

   Benchmark L: Document processes and procedures and communicate them to different audiences using appropriate oral and written techniques.

   Benchmark P: Use computers and calculators to access, retrieve, organize, process, maintain, interpret, and evaluate data and information in order to communicate.

Recommended Teaching Methods

1. Method 1:
    Description

2. Method 2:
    Description

3. Method 3:
    Description

Prior Knowledge

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Time

Instruction/Activity   Days to Complete

Activity Ideas:
1. Using infrared film to photograph different types of foliage to demonstrate crop Compliance (ASCS)
    a. Show differences between crop types
2. Create PowerPoint
    a. Track parking lot pollution (solid waste)
    b. Track automobile patterns and time (emissions)

Description➔(a detailed outline of the unit content)

I. Environmental information

    A. Negative impacts

        i. Emission

        ii. Auto

        iii. Manufacturing

        iv. Consumerism

        v. Medical

        vi. Population (life spans)

    B. Positive impacts

        i. Tracking population

        ii. Agricultural applications

        iii. Satellite imaging

        iv. Migration patterns

        v. Pollution tracking

        vi. Infrared photography

II. Film based photography

    A. Consumables

        i. Chemicals

        ii. Paper

        iii. Negative Consequences

        iv. Film

        v. Canister

        vi. Batteries

III. Digital Photography

    A. Batteries

    B. Useful life span (quickly becomes obsolete)

IV. Intended and Unintended Consequences

Assessment

Project Assessment	Example Rubric Layout			
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Purpose and Objectives of Activity

The learner will

The learner will

The learner will

Standards Addressed

Standard 1:   Students will develop an understanding of the characteristics and scope of technology.

  Benchmark J: The nature and development of technological knowledge and processes are functions of the setting.

  Benchmark K: The rate of technological development and diffusion is increasing rapidly.

Standard 2:   Students will develop an understanding of the core concepts of technology.

  Benchmark CC: New technologies create new processes.

Standard 3:   Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study.

  Benchmark G: Technology transfer occurs when a new user applies an existing innovation developed for one purpose in a different function.

Standard 9:   Students will develop an understanding of engineering design.

  Benchmark K: A prototype is a working model used to test a design concept by making actual observations and necessary adjustments.

  Benchmark L: The process of engineering design takes into account a number of factors.

Standards Addressed continued…

Standard 17:   Students will develop an understanding of and be able to select and use information and communication technologies.

       Benchmark M: Information and communication systems allow information to be transferred from human to human, human to machine, machine to human, and machine to machine.

       Benchmark P: There are many ways to communicate information, such as graphic and electronic means.

       Benchmark Q: Technological knowledge and processes are communicated using symbols, measurement, conventions, icons, graphic images, and languages that incorporate a variety of visual, auditory, and tactile stimuli.

Recommended Teaching Methods

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Time

Instruction/Activity   Days to Complete

Activity Ideas:
1. Mass media for transmitting
    a. Via multiple locations
    b. Lasers
2. Quiz
3. Cooperative work
4. GPS mini-session (Extension Agents have access to these)
5. Video conferencing
6. Universal sign design that would be multi-lingual/multi-cultural

Description→(a detailed outline of the unit content)

I. The History of Visual Communications

    A. Early Forms of Visual Communications

        i. Branding

        ii. Cave drawings

        iii. Wax tablets

        iv. Printing press

        v. Early paper imaging

        vi. Electronic imaging

II. Our Societal Needs for Visual Communications

    A. Transferring information

    B. Mass media

    C. Advertising

    D. Safety communications (multi-lingual)

    E. Security

III. Society has Developed a Need for Rapid Communications

    A. Military

        i. Development of GPS

        ii. Development of web

    B. Real Time News Report

        i. Military

        ii. Commercial

        iii. Personal)

    C. Positioning systems

Description continued…

        D. Language translation

        E. Personal communications

        F. Laser Technologies

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